


PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference A4-255PCT	FOR FURTHER ACTION	See Form PCT/PEA/416
International application No. PCT/US2004/039088	International filing date (day/month/year) 19.11.2004	Priority date (day/month/year) 20.11.2003
International Patent Classification (IPC) or national classification and IPC H01R13/24		
Applicant MOLEX INCORPORATED et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 4 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 17.06.2005	Date of completion of this report 07.12.2005	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Langbroek, A Telephone No. +49 89 2399-2544	



**INTERNATIONAL PRELIMINARY REPORT
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International application No.
PCT/US2004/039088

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-5 as originally filed

Claims, Numbers

1-16 received on 20.07.2005 with letter of 20.07.2005

Drawings, Sheets

1/7-7/7 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-16
	No: Claims	
Inventive step (IS)	Yes: Claims	1-16
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

The documents mentioned below are numbered in the following way:

D1: WO-A-0031828,
D2: US-A-2003184329,
D3: DE-U-20121748.

1. The **closest prior art** is D1, disclosing an:

"electrical terminal, comprising:

a first contact member (16) having an outer pressure contacting end portion (16b) for pressure engaging a first electrical device (see page 1 first §) and an enlarged inner end portion (16d), the pressure contacting end portion having a given length;
a second contact member (14) having an outer pressure contacting end portion (14b) for pressure engaging a second electrical device (see page 1 first §) and an enlarged inner end portion (14a), the pressure contacting end portion (14b) having a length greater than that of the pressure contacting end portion (16b) of the first contact member (which can be determined from figure 2);

a sleeve (12) including

a tube (12), fabricated of conductive material (see page 4, last 2 lines), with the enlarged inner end portions of the contact members being reciprocally slidably mounted in opposite ends of the tube (12),

a through hole for slidably receiving the inner end portions (16d, 14a) of the first and second contact members,

said through hole having first (12b) and second (12a) open ends through which the pressure contacting end portions of the first and second contact members project, and

restricted stop means (12a, 12b) at the open ends of the through hole for abutting the enlarged inner ends of the contact members to define outer limit positions of the pressure contacting end portions of the contact members; and

a biasing member (18) in the through hole of the housing to resiliently bias the contact members in opposite directions,

said pressure contacting end portions being defined as those parts of the contact members which project beyond the open ends when the enlarged inner end portions abut the restricted stop means"

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(SEPARATE SHEET)**

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from which the subject-matter of claim 1 differs in that:

F1: "the sleeve includes an outer tube, fabricated of dielectric material"

2. The objective technical problem is how to mount the terminal in a connector housing, and how to produce the enlarged inner end portions.
3. The solution is provided by the features of claim 1, see especially F1. Plastics are known to be free shapable.
4. The available prior art does in no way indicate the subject-matter according to claim 1. Therefore, claim 1 meets the requirements of Article 33(2) and (3) PCT.
5. Claim 12 is, interpreted to contain the same essential features of the last three lines of claims 1, not obvious for the same reasons.
6. Claims 2-11 and 13-16 are dependent on claims 1 or 12, and do therefore also comply with the requirements of Article 33(2) and (3) PCT.
7. The invention according to claims 1-16 is industrially applicable, these claims therefore complying with Article 33(4) PCT.

cf. VII

The independent claims are not drafted in the two-part form (Rule 6(3) PCT).
Reference signs in parentheses are not contained in the claims (Rule 6.2(b) PCT).
Those documents representing the relevant background-art are not identified in the description (Rule 5.1(a)(ii) PCT).

CLAIMS

1. An electrical terminal (30), comprising:

a first contact member (34) having an outer pressure contacting end portion (34a) for pressure engaging a first electrical device and an enlarged inner end portion (34b), the pressure contacting end portion having a given length;

a second contact member (36) having an outer pressure contacting end portion (36a) for pressure engaging a second electrical device and an enlarged inner end portion (36b), the pressure contacting end portion having a length greater than that of the pressure contacting end portion of the first contact member;

a sleeve (32) including

an inner tube (40), fabricated of a conductive material, surrounded by an outer tube (42), fabricated of a dielectric material, with the enlarged inner end portions (34b,36b) of the contact members (34,36) being reciprocally slidably mounted in opposite ends of the inner tube (40).

a through hole (44) for slidably receiving the inner end portions of the first and second contact members,

said through hole having first and second open ends (44a,44b),

restricted stop means (46,48) at the open ends of the through hole for abutting the enlarged inner ends of the contact members to define outer limit positions of the pressure contacting end portions of the contact members;

a biasing member (38) in the through hole of the housing to resiliently bias the contact members in opposite directions; and

said pressure contact end portions (34a,36a) being defined as those parts of the contact members (34,36) which project beyond the open ends (44a,44b) when the enlarged inner end portions (34b, 36b) abut the restricted stop means (46, 48).

2. The electrical terminal of claim 1 wherein said biasing member comprises a coil spring (38) having opposite ends engageable with the enlarged inner end portions (34b,36b) of the contact members (34,36).

5. The electrical terminal of claim 1 wherein said restricted stop means at one open end of the sleeve (32) is formed by an inwardly turned flange (46) of the

outer tube (42).

6. The electrical terminal of claim 1 wherein said restricted stop means at one open end of the sleeve (32) is formed by an inwardly turned flange (48) of the inner tube (40).

7. The electrical terminal of claim 6 wherein said restricted stop means at an opposite open end of the sleeve (32) is formed by an inwardly turned flange (46) of the outer tube (42).

8. The electrical terminal of claim 7 wherein one end of the inner tube (40) abuts against the inwardly turned flange (46) of the outer tube (42).

9. The electrical terminal of claim 1 wherein the outer pressure contacting end portion (34a) of said first contact member (34) has a rounded convex contact surface (34c) for engaging the first electrical device.

10. The electrical terminal of claim 1 wherein the outer pressure contacting end portion (36a) of said second contact member (36) has a rounded convex contact surface (36c) for engaging the second electrical device.

11. The electrical terminal of claim 10 wherein the outer pressure contacting end portion (34a) of said first contact member (34) has a rounded convex contact surface (34c) for engaging the first electrical device.

12. An electrical terminal (30), comprising:
a first contact member (34) having an outer pressure contacting end portion (34a) for pressure engaging a first electrical device and an enlarged inner end portion (34b), the pressure contacting end portion having a given length;

a second contact member (36) having an outer pressure contacting end portion (36a) for pressure engaging a second electrical device and an enlarged inner end portion (36b), the pressure contacting end portion having a length greater than

that of the pressure contacting end portion of the first contact member;

a sleeve (32) including an inner tube (40) fabricated of conductive material and an outer tube (42) fabricated of dielectric material,

a through hole (44) in the inner tube for slidably receiving the inner end portions of the first and second contact members at opposite ends of the inner tube,

said through hole having first and second open ends (44a, 44b) through which the pressure contacting end portions of the first and second contact members project,

a restricted stop at the open end of the through hole formed by an inwardly turned flange (46) of the outer tube (42) for abutting the enlarged inner end of one of the contact members (34) to define an outer limit positions of the pressure contacting end portion (34a) of the one contact member, and

a restricted stop at an opposite end of the through hole formed by an inwardly turned flange (48) of the inner tube (40) for abutting the enlarged inner end portion (36b) of the other contact member (36) to define an outer limit position of the pressure contacting end portion (36a) of the other contact member; and

a coil spring (38) in the through hole and having opposite ends engageable with the enlarged inner end portions (34b, 36b) of the contact members (34, 36) to resiliently bias the contact members in opposite directions.

13. The electrical terminal of claim 12 wherein one end of the inner tube (40) abuts against the inwardly turned flange (46) of the outer tube (42).

14. The electrical terminal of claim 12 wherein the outer pressure contacting end portion (34a) of said first contact member (34) has a rounded convex contact surface (34c) for engaging the first electrical device.

15. The electrical terminal of claim 12 wherein the outer pressure contacting end portion (36a) of said second contact member (36) has a rounded convex contact surface (36c) for engaging the second electrical device.

16. The electrical terminal of claim 15 wherein the outer pressure

contacting end portion (34a) of said first contact member (34) has a rounded convex contact surface (34c) for engaging the first electrical device.